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Afin d'expliquer les aires de distribution naturelles, l'auteur se penche sur l'évolution de la vie végétale pendant les temps géologiques en consacrant un chapitre entier aux changements survenus au cours du Pléistocène pour décrire finalement, les différents types d'aires de distribution : « continues », discontinues, reliques, vicariantes, endémiques, ainsi que les aires des plantes cultivées et des mauvaises herbes. De nombreuses cartes illustrent cette partie du livre. Viennent enfin, deux chapitres consacrés à l'étude des facteurs du milieu, des principaux types d'habitats et des principales successions.

La deuxième moitié du volume, c'est-à-dire les sept derniers chapitres, est consacrée à la description des types de végétation des pays tempérés, tropicaux et polaires, ainsi qu'à la végétation aquatique des eaux continentales et océaniques. La répartition de la végétation est matérialisée sur la *Carte générale de la végétation des continents*, établie, en 1958, par Küchler. Ce dernier document, bien que très lisible, présente cependant quelques particularités qui peuvent sembler pour le moins curieuses à un écologiste. Par exemple, la toundra forestière du nord de l'Ungava et les pinèdes de Floride à sous-étage de palmiers sont réunies dans la même unité cartographique désignée par la même couleur et le même symbole ; il en est de même de la « prairie » canadienne, habitat naturel du bison et de la prairie marécageuse du sud de la Floride où vivent les alligators. Enfin, l'auteur ajoute deux chapitres : un sur le rôle de la végétation dans le paysage et un autre sur sa valeur indicatrice en vue de l'utilisation du sol par l'homme et ses cultures.

Écrit dans un langage simple, le livre s'adresse à tous ceux qui, sans être spécialistes, s'intéressent à un problème quelconque de la répartition des végétaux à la surface du globe.

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BIROT, Pierre. **Les formations végétales du globe.** Paris, Société d'édition d'enseignement supérieur, 1965. 508 pages, 83 figures.

Birot clearly announces by his title the essentially geographic purpose of his book, a regional outline of the vegetation patterns of the world. The use of the term « formations » implies the physiognomic description of vegetation in the terms familiar to geographers. His intention of dealing with world patterns implies the zonal approach in which climate is taken as the primary limiting factor of the environment.

In his presentation of the formations, the scope of the volume permits Birot to depart from the zonal compartments and climatic homologies implied by the Köppen system of bioclimates. Vegetation formations of essentially continuous land masses, such as the taïga and arctic tundra, are treated without continental divisions ; but the long-isolated and evolved temperate and subtropical vegetative formations of North America, Europe and the Far East are treated under separate headings. From the chapters on north temperate zones controlled by growing season are separated chapters on prairie and littoral vegetation, on the altitudinal zonation of mountain regions, and a treatment of the very different and diverse formations of the southern temperate zone. The intertropical region is the subject of a large section (80 pages), in which the idea of edaphically controlled « mosaics » (notably the forest-savanna mosaic) is introduced. The arid regions receive the remaining 26 pages of regional consideration. Birot has, therefore, avoided correlating vegetation zones with climatic zones, but instead classifies vegetative formations climatically. His formations thus tend to coincide with floristic provinces.

Birot undertakes to ground his regional treatment in an understanding of the ecosystem. The first 30% of the book is devoted to a discussion of the physiological processes of growth and life cycle, with the environmental factors affecting them. For each major climatic zone, indications of the productivity of the plant level of the ecosystem are given, climatic limiting factors considered, etc. Although the selection of materials is interesting, the assemblage is too ill-assorted to be very useful as an introduction to geographers. The explanations of plant anatomy and physiology are often too elementary to provide any idea how the experimental data were

obtained. Possibly the application of this method to a world outline of vegetation was premature at the time when Birot prepared this volume, but it does not appear to have been an exhaustive search of the literature.

In short, the principal criticism of this book is the grievous fault of ambition — too much attempted. The lack of relationships drawn between the two major themes, of the formations and their productivity, is characteristic. The brevity of the descriptions of the formations calls for the use of slides or, in fact, of a photographic album by Clozier which must be considered as an essential complement to this volume. The evolutionary and geological history justifying the floristic nature of these vegetative formations is barely touched upon. Yet, other than the frequent appearance of climatic change, *deus ex machina*, and its implicit effects, little use is made at a regional level of the physiological bases of the book.

The whole book, in fact, has the allure of a partially revised series of lecture notes : excellent first chapter, excellent outline, concrete examples cited from periodical literature (and often substituted for any attempt at regional synthesis), yet a very sketchy presentation. Despite the subject, it would appear that the book was rushed into print without adequate attention from editor or proof-reader, for a myriad of typographic and orthographic errors and inconsistencies dot its pages, the illustrative material and captions in particular.

Yet it has also the good qualities of a course of lectures : a stimulating introduction and outline, a good idea still fresh, a guide however incomplete to inform one's future reading in ecology and biogeography.

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SHELFORD, Victor E. **The Ecology of North America.** Urbana, University of Illinois Press, 1963. xxii+610 pages, maps, illus., bibliog., and species index.

This volume is supposedly the first comprehensive ecological description of North America as it appeared in the period 1500 to 1600 A.D. The book actually culminates the life work of V. E. Shelford, « the father of modern animal ecology and bioecology. »

The work is indeed a meaty piece of ecological literature as attested to by the first twelve pages. Chapter 1 is devoted to « The Scope and Meaning of Ecology », and includes a concise analysis of the field and its terminology. The remaining eighteen chapters, however, are concerned with the diverse variety of natural communities in North America. The author approaches such a vast geographical area by dividing Canada, the United States, and Mexico into twelve large to medium-sized biomes. Because these major communities are seldom uniform in character throughout, they are further subdivided into plant associations and faciations.

It is pertinent to note that the author defines a biome as the largest community (e.g. tundra) recognized by the character of its climax, but including several stages as well. Shelford stresses that biomes are plant formations with the animal constitutents integrated. Actually this latter fact not only emphasizes an often neglected segment of ecology, but also gives the volume a fresh integrating quality not duplicated elsewhere in ecological literature. Such an introduction of animals into the community classification based on plants represents original thinking and considerable reorganization of current community concepts. Shelford justifies using animals under four conditions, the most important being when some significant animal species are distinctive and present throughout the community. Thus the Temperate Deciduous Forest Biome (chapter 2) is also called the *oak-deer-maple biome*, the Boreal Coniferous Forest (chapter 5) is likewise termed the *spruce-caribou-biome* by the author, and so forth.

Although Shelford lists the characteristic species of both animals and plants for each different community, gives quantitative data on the populations of animals and densities of plants, describes the food habits of animals, and shows other interrelationships between animals and vegetation, too little information is presented about the pre-European settlement period, which was, after all, the goal of the book. Shelford himself admits in Chapter 1 : « Unfortunately, plant and animal communities were in shambles before scientific study began. Thus the ecology